PSYCHOLOGICAL LITERATURE

Memories of my Life. By FRANCIS GALTON. With eight illustrations. New York, E. P. Dutton and Company, 1909. pp. viii., 339. Price $3.50.

In this handsome volume, clearly printed and light in the hand, Sir Francis Galton—the recent list of birthday honors has given him the title long ago conferred by a public careless to discriminate between cousins—sketches, briefly and interestingly, the main events of his long and varied career. There are three portraits, and an Appendix contains a full bibliography of the author's books and memoirs.

"It has been a difficulty throughout," we are told in the Preface, "to determine how much to insert and how much to omit. I have done my best, but fear I have failed through over-omission." The fault is, no doubt, upon the right side. But the psychological reader would have been grateful for a more detailed account of the author's psychophysical work. Sir Francis Galton was, after all, the pioneer of experimental psychology in Great Britain; he originated much that was either independently discovered or further elaborated on the Continent; and his memoirs are widely scattered in technical magazines and in the proceedings of scientific societies. However, we may perhaps look forward to a complete collection of these papers at some future date.

We are here not concerned with the author's explorations in southwest Africa, with his work upon the council and in the secretaryship of the British Association, or with his activities as member of the Meteorological Committee and Council. The chapters in which these matters are discussed are delightful reading; but that bare statement must suffice. We come nearer to psychology with the chapter on anthropometric laboratories, which ends with an amusing anecdote of Herbert Spencer. The succeeding chapter deals with composite portraits and stereoscopic maps. The writer does not seem to be aware of the objection, raised in France some years ago and mentioned by Binet in his *Étude expérimentale de l'intelligence*, that the first portrait exposed exerts an undue influence upon the photographic plate, so that the camera is not impartial. An attempt at 'analytical photography,' in which a negative composite was photographed together with a positive portrait of one of its elements, is referred to as a failure. The conventional representation of a galloping horse, with all four legs simultaneously extended, was found to be reproducible by compounding a series of momentary attitudes. "When all of the twenty attitudes [of Muybridge's photographs] are combined in a single picture, the result is certainly suggestive of the conventional representation, though in a very confused way . . . Seeing that according to the photographs . . . the two fore legs were extended during one quarter of the complete motion, and that during another quarter the two hind legs were similarly extended, I made composites of these groups separately." Combination of the halves of the composites gave "a very fair equivalent to the conventional attitude. I inferred that the brain ignored one-half of all it saw in the gallop, as too confused to be noticed; that it divided the

other half in two parts, each alike in one particular, and combined the two halves into a monstrous whole."

Two experiments, hitherto unpublished, may be quoted from the chapter on Human Faculty. The one was planned "to gain some idea of the commoner feelings in Insanity. The method tried was to invest everything I met, whether human, animal, or inanimate, with the imaginary attributes of a spy. Having arranged plans, I started on my morning's walk, . . . and found the experiment only too successful. By the time I had walked one and a half miles, . . . every horse on the stand seemed watching me, either with pricked ears or disguising its espionage. Hours passed before this uncanny sensation wore off, and I feel that I could only too easily re-establish it." The other was designed "to gain an insight into the abject feelings of barbarians and others concerning the power of images which they know to be of human handiwork. I had visited a large collection of idols gathered by missionaries from many lands, and wondered how each of these absurd and ill-made monstrosities could have obtained the hold it had over the imaginations of its worshippers. I wished, if possible, to enter into those feelings. It was difficult to find a suitable object for trial, because it ought to be in itself quite unfitted to arouse devout feelings. I fixed on a comic picture, it was that of Punch, and made believe in its possession of divine attributes. I addressed it with much quasi-reverence as possessing a mighty power to reward or punish the behavior of men towards it, and found little difficulty in ignoring the impossibilities of what I professed. The experiment gradually succeeded; I began to feel and long retained for the picture a large share of the feelings that a barbarian entertains towards his idol, and learnt to appreciate the enormous potency they might have over him." Experiments of this sort, empathic experiments, might well be introduced into the laboratory, and should yield valuable analytical results. The writer himself does not go further into description of the uncanny sensation of being watched, or of the reverential feeling towards the figure. The chapter contains other suggestions of an experimental sort, among them this: "the human senses, when rhythmically stimulated in certain exact cadences, are capable of eliciting overwhelming emotions not yet sufficiently investigated."

A controversy with Max Müller (who had emphasized the importance of language as a means of thought, while the author believed that he himself thought hardest when making no mental use of words) led to the well-known experiments upon arithmetic by smell. After certain associations had been practised, the mental cue to 'add' or 'subtract' was sufficient to start the arithmetical operations in terms of smell alone; "there was not the slightest difficulty in banishing all visual and auditory images from the mind, leaving nothing in the consciousness besides real or imaginary scents." These experiments should be repeated: first, in order to determine the specific mode of representation of the 'imaginary' scents; and secondly in order to determine whether the odors are at once 'sign' and 'thing signified,' as may be the case with words, or whether the meaning which has been read into the odor by association is carried by some concomitant process which, in the original experiments, escaped observation.

The final chapters treat of Heredity and Race Improvement. After stating the Ancestral Law, the author writes: "my data were not as numerous as is desirable, still the results were closely congruous, and seem to be a near approximation to the truth. The conclusions have been much discussed and criticised, and have been modified by

Professor Karl Pearson; but they have not been seriously shaken, so far as I know." Here is a point where a more detailed consideration would have been in place. We do not know whether Mendelism has received careful study, and has been rejected as unreliable, or whether the writer has failed to follow recent developments in the theory of hereditary transmission. On the subject of Eugenics we read: "its first object is to check the birth-rate of the Unfit, instead of allowing them to come into being, though doomed in large numbers to perish prematurely. The second object is the improvement of the race by furthering the productivity of the Fit by early marriages and healthful rearing of their children. Natural Selection rests upon excessive production and wholesale destruction; Eugenics on bringing no more individuals into the world than can properly be cared for, and those only of the best stock."——

Sir Francis Galton belongs to a vanishing type of workers in science,—men of high native ability and independent fortune, who devote themselves to the advancement of knowledge and its application in the public service from an intrinsic interest and a keen sense of public duty. Charles Darwin, his near kinsman, is perhaps the most conspicuous instance of the type, which .indeed has always found its principal representatives in Great Britain. The vast accumulation of scientific observations in recent years, and the necessity of a technical training to cope with it, have now brought the specialist to the front in all intellectual concerns; and the amateur, however gifted, must in the future be content to take a lower place. It is not likely that our author will have successors. All the more should we be grateful for this outline of his life and labors; all the more should we pay our free homage to one who, without the responsibilities of an official position, did yeoman's work on behalf of the struggling science of experimental psychology. TH. WALTERS.

Fifty Years of Darwinism: Modern Aspects of Evolution. Centennial Addresses in Honor of CHARLES DARWIN before the American Association for the Advancement of Science, Baltimore, Friday, Jan. 1, 1909. New York, Henry Holt & Co., 1909. pp. v., 274.

This volume, the nature and object of which are sufficiently indicated by its title, contains ten addresses and a brief introduction. The Introduction, written by Prof. T. C. Chamberlin of the University of Chicago, the president of the American Association for the Advancement of Science, points out the influence that the thought of Darwin has exerted and still exerts upon the work of the Association. "In the first decades of the great Darwinian movement in biology, the tribute of our members may not have been wanting in demonstrations of the force of old adhesions, but even then, whether by resistance or by co-operation, we gave our testimony to the new power that made itself felt in the scientific world. A little later, we paid the tribute of conviction—the general tribute of willing conviction, on the part of some of us, and the even more significant tribute of reluctant conviction, on the part of others; but, in one way or another, we paid a universal tribute." The continuance of this influence is attested by the following addresses.

Professor E. B. Poulton, Hope professor of entomology at Oxford, opens the series of special papers with a review of Fifty Years of Darwinism. We cannot mention all the points, biographical, appreciative, critical, controversial, made by Professor Poulton in the course of his address. We notice only his strong insistence on the influence of Sir Charles Lyell, the geologist, upon Darwin's mind; his hardly qualified rejection (p. 40), as against Francis Darwin, of